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Atmospheric Chemistry and Physics Discussions

Interactive comment on "The role of HONO in O_3 formation and insight into its formation mechanism during the KORUS-AQ Campaign" *by* Junsu Gil et al.

Anonymous Referee #1

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Nitrous acid (HONO) is an important precursor of OH radicals, which is closely related to the oxidation capability of the regional atmosphere, and thus promote a lot of atmospherically chemical process, such as secondary particle formation. In the manuscript, the authors performed a field-measured HONO in Korea, and proposed that the coupling of HONO with HOx -VOCs-O3 cycle in Seoul Metropolitan Areas (SMA), and suggested that NOx, surface area, and RH were the main factors affecting ambient HONO concentrations during field-observation in this region. The topic focused by this paper is very important in the field of atmosphere chemistry. However, the measurement period is so short, and it is difficult that the present data support the conclusion. The manuscript also suffered from a couple of big flaws. The whole manuscript was

not well organized and written. Especially, the data seems simple and was not well discussed. I thus refused this manuscript to be published on ACP.

1 In the INTRODUCTION section: Generally, the introduction section was poorly organized, and it should be rewritten. In this section, many literatures on the HONO field study were not cited, and the available studies were also not displayed in a line. Especially, the description about tools and methods should be positioned later on the HONO formation mechanism concluded from the field studies during the past years. In a word, this section should be written in more detail. 2 "In this study, we conducted a measurement. . . for two purposed:. . .1 to figure out . . .2 to enhance . . .", However, one can see that which did not coincide with the ABSTRACT structure. Why? 3 In the experimental section, ANN should also be mentioned in the INTRDUCTION sections, as well as the relevant literatures on HONO. 4 In the discussion section, Generally, the discussion about the field data is weak (the measurement period is so short) and it is difficult to support the conclusion. 5 The English presentation is not so good, which could not be fulfil of the standard of the ACP manuscript. It should be improved greatly before publication. There are many spelling mistakes and syntactic error, as well as unsuitable sentence used. For example, in line 34. ". . .higher in high-O3 episodes (1.82 ppbv) than non-episode (1.20 ppbv)" should be changed to ". . .higher in high-O3 episodes (1.82 ppbv) than that in the non-episode (1.20 ppbv).

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